Calibration Fluid for Diesel Injection Equipment —SAE J967d

SAE Standard
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Society of Automotive Engineers, Inc.
400 COMMONWEALTH DRIVE, WARRENDALE, PA. 15096

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∅CALIBRATION FLUID FOR DIESEL INJECTION EQUIPMENT—SAE J967d

SAE Standard

Report of Engine Committee approved August 1966 and completely revised August 1977.

Scope—This SAE Standard defines the requirements of a calibration fluid recommended for flow bench testing, calibration, and flushing of fuel injection equipment, in production facilities, in laboratories, and in service establishments.

International Standard—The equivalent ISO calibration fluid specification is ISO/TC 22/SC 7 Document No. 169.

Property Requirements—The calibration fluid shall be formulated from straight-run, low odor, fuel stocks, containing additives as required to meet the specifications shown in Table 1.

The calibration fluid shall not contain components in such a concentration that irritation of the normal skin could result. The rust and corrosion inhibiting and antiforming additives must remain in solution and maintain their effectiveness despite cyclic temperature variations of 100–250°F (37.8–121°C) imposed by testing.

The calibration fluid should have good storage and thermal stability and shall be such that, without cleaning of the equipment after calibration, proper functioning of the equipment is insured after being stored one year in normal conditions.

Certification—A supplier of this calibration fluid must supply, with each container or bulk shipment certification that the fluid meets this standard and state the specific revision. The date of manufacture must be included.

TABLE 1—CALIBRATION FLUID SPECIFICATIONS

Property	Specification Limit	Test Designation
Viscosity[a]	2.55–2.85 (2.55–2.85) cSt (mm^2/s) at 100°F (37.8°C) [b]2.45–2.75 (2.45–2.75) cSt (mm^2/s) at (40°C)	ASTM D-445
Specific Gravity (Referred to as Density by ISO)	0.819–0.829 (60/60°F) (15.5/15.5°C) [b]0.820–0.830 g/mL at 15°C	ASTM D-1298
Color	3 maximum	ASTM D-1500
Color (after storage of 6 months)	4 at 110 ±5°F (43.3 ±2.8°C) maximum	ASTM D-1500
Corrosion—(Copper)	Pass—Classification 1 at 212°F (100°C)—3 h	ASTM D-130
Corrosion—(Steel)	Pass—24 h	ASTM D-665A
Galvanic Corrosion	Pass—10 days	FSTM 5322.1
Sulfur	0.4% weight, maximum	ASTM D-129
Distillation	5% volume maximum at 410°F (210°C) 95% volume minimum at 680°F (360°C)	ASTM D-86 ASTM D-86
Flash Point (P.M. closed cup)	167°F (75°C) minimum	ASTM D-93
Trace Sediment (including water)	0.01% volume, maximum	ASTM D-2273
Foaming Tendency (after 5 min blowing)	50 mL, maximum at 75°F (23.9°C) [c]50 mL, maximum at 24°C	ASTM D-892 (sequence 1 only)
Foaming Stability (after 2 min settling)	0 mL, at 75°F (23.9°C) [c]0 mL, at 24°C	ASTM D-892 (sequence 1 only)
Rust Protection (polished panels)	Pass 5 out of 6 faces of three panels tested—50 h	ASTM D-1748
Cloud Point	14°F (-10°C) maximum	ASTM D-2500
Aromatic Components	12% C_A maximum	ASTM D-2140

[a]It is recommended that calibration fluid be renewed when the viscosity increases above 3.1 cSt (mm^2/s) at 100°F (37.8°C).

[b]Equivalent test limit, specified by ISO.

[c]Alternate test limit, specified by ISO.

The ϕ symbol is for the convenience of the user in locating areas where technical revisions have been made to the previous issue of the report. If the symbol is next to the report title, it indicates a complete revision of the report.